

What is claimed is:

1. An activation method of a communications apparatus that have both a feedback loop and a non-linear distortion compensation device with a function to generate/update a distortion compensation coefficient, comprising:
- 5 (a) opening the feedback loop;
- 10 (b) adjusting both a level and a phase of an analog signal of the communications apparatus;
- (c) closing the feedback loop; and
- (d) generating/updating the distortion compensation coefficient.
- 15 2. The activation method according to claim 1, further comprising:
- (e) activating a digital section of said communications apparatus prior to step (a); and
- (f) activating an analog section of said communications apparatus between steps (a) and
- 20 (b).
3. The activation method according to claim 1, wherein said level adjustment is made to offset gain of an amplifier for amplifying a signal in order to
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transmit radio waves of said communications apparatus.

4. The activation method according to claim 1, wherein
5 said phase adjustment is made to adjust analog signal delay that is caused in the analog section of said communications apparatus and to match in timing a signal transmitted via a feedback loop with a signal directly inputted to said non-linear distortion
10 compensation device.
5. The activation method according to claim 1, wherein
said communications apparatus conducts multi-carrier transmission, said activation method,
15 further comprising
(g) adjusting both amplitude and phase of a signal for each carrier.
6. The activation method according to claim 5, wherein
20 step (b) is performed using a central frequency of a band occupied by the plurality of carriers as a whole.
7. The activation method according to claim 1, wherein
25 said generation/update of a distortion compensation

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coefficient is made using a test signal.

8. The activation method according to claim 1, wherein
said communications apparatus is composed of a
5 plurality of transmitting systems, forms a feedback
loop by sequentially switching the plurality of
transmitting systems and generates/updates the
distortion compensation coefficient.
- 10 9. The activation method according to claim 1, wherein
a plurality of generation/update steps of the
distortion compensation coefficient can be set.
10. The activation method according to claim 9,
15 wherein the generation/update step of the distortion
compensation coefficient is set to a minimum and
a level of a signal to be used to generate/update
the distortion compensation coefficient is changed
in multi-steps from the minimum value and the
20 distortion compensation coefficient is
generated/updated by gradually increasing the
level.
11. The activation method according to claim 1,
25 wherein a value measured in advance is used as an

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initial value for said generation/update of a distortion compensation coefficient.

12. The activation method according to claim 1,
5 wherein all coefficients are set to $1+j0$ (j is the imaginary unit) as an initial value for said generation/update of a distortion compensation coefficient.
- 10 13. The activation method according to claim 1,
wherein convergence of a generation/update process of the distortion compensation coefficient is judged by detecting size of a difference signal between a signal directly inputted to said non-linear
15 distortion compensation device and a signal which is transmitted via said feedback loop and the level of which is adjusted.
14. The activation method according to claim 1,
20 wherein convergence of a generation/update process of the distortion compensation coefficient is judged by detecting an out-of-band radiation level of a signal immediately before being transmitted from said transmitting unit.

15. The activation method according to claim 1,
wherein if said non-linear distortion compensation
device is switched off and is switched on again,
a value immediately before said non-linear
5 distortion compensation device is switched off is
used as an initial value for said level adjustment
and phase adjustment processes in step (b).

16. The activation method according to claim 1,
10 wherein a transmitting side of said communications
apparatus comprises an antenna and a signal
termination unit with the same impedance as that
of the antenna, and generates/updates the distortion
compensation coefficient while terminating a signal
15 used to generate/update the distortion compensation
coefficient at the signal termination unit.

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